Projector Buying Guide Quick Reference Handout

The latest projectors are extremely bright, can project a huge, vibrant image, are ultra-quiet, and are versatile enough to project everything from family photos to your favourite streaming TV shows.

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There are three basic types of projectors that roughly correspond to the three main uses for projectors.

1. Home theatre projectors

Home theatre projectors are like TVs, only they are in a much smaller box. It's easy to hook a computer up to a projector and stream TV, photos, home videos, and more. You can enjoy streaming TV on a home theatre projector, and you can also choose a projector with built-in Wi-Fi or add a media streamer like Google Chromecast. Home theatre projectors are most often recommended for watching movies or TV, gaming, or showing photos and slideshows.

2. Business or data projectors

Business projectors are portable projectors meant to be used in large spaces, so are often brighter than home theatre projectors as they need to compensate for overhead lighting or windows in some large meeting spaces. Business projectors easily connect to laptop computers via cables such as HDMI or have Wi-Fi to make sharing presentations easy. Business/Data projectors are most often recommended for classrooms, work presentations, or conferences.

3. Gaming projectors

A gaming projector is similar to a home theatre projector but it focuses on features designed to give you the best gaming experience. They can project huge, vibrant images in 1080p or 4K resolution, some models have HDR compatibility, and most gaming projectors run at at least 60Hz refresh rate. They also have extremely low input lag and speedy response times. Gaming projectors are most often recommended for gamers who want a bigger screen or families who like to game together.

4. Portable projectors

Portable projectors have the picture quality of a home theatre projector but in a take-anywhere, package. Samsung The Freestyle is part of the new class of portable projector for

anyone who wants to take a home theatre quality projector on the go. It weighs less than 2 lbs, streams in 1080p Full HD, and can project up to 100 inches on a flat surface.

5. Pico projectors

Pocket or Pico projectors are tiny pocket-sized projectors perfect for the businessperson on the go. They will fit into a handbag, carry-on, or briefcase and often weigh less than 3 pounds. Pocket projectors can display images up to 70 inches and often have Wi-Fi or connect to your smartphone or tablet. Pico projectors are most often recommended for small groups, small rooms, or travel use.

There is one type of projector that has multiple uses - a multi-use projector can be used as both a data projector for business applications and presentations and a home theatre projector so you can watch movies, gaming, and other home entertainment.

6. Short throw projectors

If you're short on space in your living room, a short throw projector may be the right choice. The main difference between a short throw projector vs a long throw projector is how far away the projector needs to be placed to 'throw' the image.

- A long throw projector needs approximately 6 feet or more between where your projector is mounted and the projector screen
- A short throw projector needs only half that distance to project the same image
- There are ultra-short throw projectors that can project a 100-inch image when placed directly under, over, or in front of the screen.

Short throw projectors work well in bright rooms so can watch TV during the day. There will be fewer shadows produced on the screen because the throw distance is shorter. Just keep in mind this type of projector works best with an ambient light rejecting projector screen. This type of screen has an angular reflective surface that rejects ambient light while reflecting light from the projector to the screen.

7. Outdoor projectors

Most projectors can be set up outdoors in a pinch or used indoors or outdoors as needed. You can also find dedicated outdoor projectors that are portable and have brighter lights. You can use an outdoor screen and watch outdoors, but keep in mind the projector is not waterproof so you won't want to use it outside in the rain.

LCD vs DLP vs LCOS projectors

There are three main technologies used to project an image onto a screen:

- LCD
- DLP
- Hybrid type LCOS

1. **LCD projectors**

LCD, or “Liquid Crystal Display” is the same technology used in flatscreen TVs. In LCD projectors, light is beamed through liquid crystals on its way to the screen or wall.

LCD projector advantages:

- Brighter output makes it ideal for use in well-lit rooms
- Excellent colour brightness and sharper images
- Displays crisp, clear 3D images with no "ghosting"

2. **DLP projectors**

DLP, or Digital Light Processing, uses millions of tiny mirrors, or “digital micromirrors” to reflect light and beam an image. In DLP projectors, light projected through each mirror acts to reflect a pixel of the final image.

DLP advantages:

- Lightweight and compact
- Provides deeper, truer blacks when compared to LCD projectors
- Superior colour contrast and smooth motion for videos and fast-action scenes

3. **LCOS projectors**

LCOS stands for “liquid crystal on silicon.” LCOS projectors were designed to be a combination of LCD and DLP technology.

Streaming to a projector

The latest projectors offer 4K resolution and built-in Wi-Fi or Bluetooth. You can use this type of home theatre projector as an alternate to a TV, and some projectors have streaming services already on board or have ports to let you connect a media streaming device.

Projector light sources

How bright is your projector bulb? It depends on what type of light source it has.

1. **Lamp or bulb projector**

Projectors in past years always had lamps or bulbs. While the bulb can be very bright and last thousands of hours, other advances in projector light technology will give you a stronger and more reliable light option.

2. **LED projector**

LED projectors provide light without the same heat as regular bulbs. LED bulbs also last much longer than traditional bulbs, singing for up to 20,000 hours compared to a traditional bulb's 3-4,000 hour lifespan.

3. **Laser projectors**

Laser projectors use a technology that does away with bulbs altogether. They have bright illumination source and better contrast than a bulb. Laser projectors are much more energy-efficient than either regular or LED bulbs.

Understanding key terms related to projector technology

Before you choose your new projector, there are a few terms to know.

1. **Lumens (brightness)**

Projector brightness is measured in 'lumens'. The higher the number of lumens, the brighter the image will be.

2. **Throw ratio**

Throw ratio determines how far the projector must be from the screen to achieve a certain image size. Throw ratio is important when mounting the projector or putting it in a fixed location. Throw Ratio is calculated by looking at throw distance per foot of image width (Throw Distance: Image Width). A 2:1 throw ratio translates to 2 feet of throw distance per foot of screen width, meaning that to get a 7-foot wide image, the projector needs to be 14 feet from the screen.

3. **Resolution**

Resolution in projectors is similar to resolution in TVs. It is the total number of pixels that a projector is able to display, ranging from 480p, 720p, 1080p (HD), and 4K.

4. **Contrast ratio**

Contrast ratio measures the difference between the lightest areas of the image and the darkest. It allows viewers to see light and shadow, providing a depth of the picture and much more realism.

5. **Keystone correction**

Keystone Correction compensates for displaying at slight angles or projecting on curved surfaces by adjusting for those warped or distorted images digitally. It's a helpful feature if placing the projector at a 90-degree angle to the screen or surface isn't an option.

Do you need a projector screen?

Having a proper screen to project onto results in the highest quality image and will display the video to its best advantage.

Projector screen options

1. **Pull down screen (fixed or manual)** - A screen with a self-locking mechanism gives you the most options for display. A self-locking projector screen can be unrolled to almost any position.

2. **Retractable screen** - Retractable screens are best for permanent installation and when not in use the screen retracts into the ceiling and slides into a casing.

3. **Portable/collapsible screen** – This type of screen come with tripod legs and a retractable screen that can be assembled in minutes.

Projectors that make great gifts

If you know someone who would love to have a projector for watching movies at home or to take with them on the go, there are a few types of projectors that are perfect for gifting.

1. If you're buying a gift for someone who loves to camp or travel - If you know someone who spends a lot of time in a camper trailer or fifth wheel in the summer, you can give them the gift of a portable projector or outdoor projector with an LED light source and a minimum of 7500 lumens.
2. If you're buying a projector for someone who loves movies - Movie fans will love a laser projector or home theatre projector with ultra-bright light, vivid colour, and the ability to watch movies day or night on screens up to 130 inches.
3. If you're buying a projector for kids – Pico projectors are a good choice for kids as they are small, have Wi-Fi on board, and can be taken along for school trips or sleep overs.